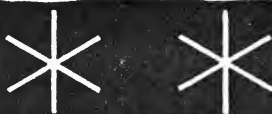


circular 153  
june, 1949

# HOME FREEZING

vera  
greaves  
mrak

how to



**prepare**  
**store**  
**thaw**  
**and cook**  
frozen foods



california agricultural extension service  
the college of agriculture  
university of california • berkeley



**FROZEN FOODS** *now have a place on most home menus, either as a regular item, as an occasional emergency dish, or as an out-of-season treat. The homemaker, whether she lives on a farm or in the city, knows the advantages of frozen foods as time-savers and as a way of providing variety in her meals all year round. She is no longer limited to serving only seasonal foods, for July's strawberries may appear in December's shortcake.*

*The preservation of foods by freezing storage is not new. It has been done commercially for some time. Recently, however, freezers for home use have become available in a variety of styles and sizes, and women have become interested in preparing, freezing, and storing food at home.*

**THIS CIRCULAR** *is planned to help you decide what type freezing storage will best serve you, and whether a home freezer is practical for your family. It also gives you general instructions in home freezing techniques, and specific instructions for freezing fruits, vegetables, meat, fish, poultry, eggs, and precooked foods.*

*A table of contents appears on page 21.*

**THE  
AUTHOR**

Vera Greaves Mrak was Associate Home Economist in Agricultural Extension, Berkeley. (Resigned, December, 1948.)

will it pay me to store  
frozen food for home use?

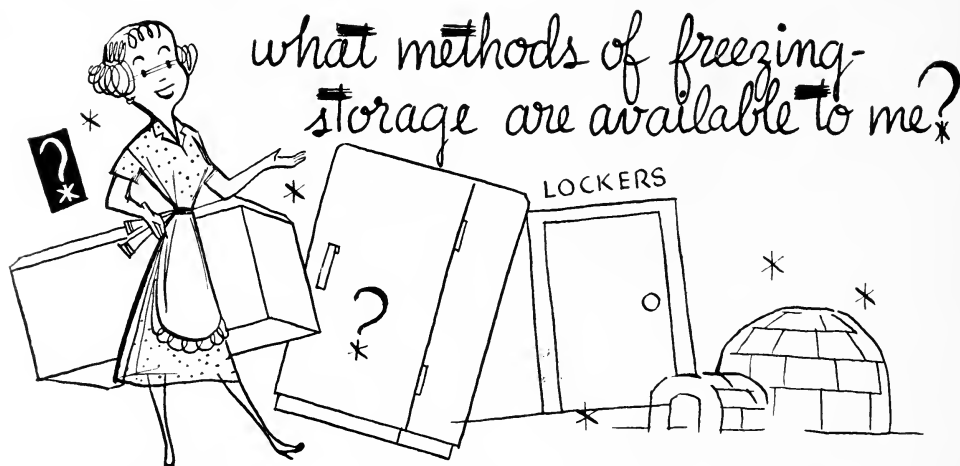
**There is no standard answer to this question. Each family must decide whether home freezing storage is worth the money invested, from the standpoint of convenience, time, and/or money saved.**

**The farm family** can usually make real savings in money. The most economical method for the rural family is usually the local locker plant if it is satisfactory and not too far away. A more convenient arrangement may be a moderate-sized freezing unit on the farm, and use of the locker plant for cutting and freezing large meat animals and for temporary storage.

**City and suburban families** may not save money through freezing storage, when the total cost is figured, unless they can buy food in quantity at reduced prices. Sometimes, the convenience of



having a variety of foods readily available outweighs this consideration. But for many urban homemakers, the time spent in getting and preparing the food while it is at top quality, and the planning necessary to insure its use while at its best after freezing may be a burden rather than a time- and money-saver. In such instances, the space which the new refrigerators provide for temporary storage of frozen food may be completely satisfactory.



### 1. The Community Locker Plant

Most communities in California have locker plants where individual lockers may be rented. The charge for the locker, and the services rendered, such as cutting and wrapping meat and prefreezing food, vary widely.

The storage room in the locker plant should maintain a relatively constant temperature of  $0^{\circ}\text{F}$ , or lower, and the plant should also have some facilities for rapid freezing of food before storage in individual lockers.

## 2. Home Freezing Units

Many types and sizes of home freezing units are now available, from the 4-cubic-foot storage chest to the large, walk-in box with attached chill room. Sometimes it is practical for the farmer to build his own freezer, or have one built. (See "Construction of Farm Refrigerators and Freezers," by James R. Tavernetti, California Agricultural Experiment Station Circular 387.)

A home unit should be capable of maintaining a temperature of 0° F or lower when surrounded by an air temperature as high as 100° F. It should have at least 4 inches of insulation on sides and bottom, and at least 3 inches on the lid or door. It should be able to freeze at least 5 per cent of its total capacity per day. Do not put more than that amount into the freezer each day unless there is special provision for handling a greater quantity. Freeze larger quantities of food at the locker plant before storing them in the home freezer.

## 3. Storage Space in the Home Refrigerator

Many of the new refrigerators have 1 or 2 cubic feet of freezing storage space. A temperature of about 15° F is maintained in this space when the refrigerator is set for normal running. **This temperature is satisfactory for short storage periods only, as vegetables and meat stored at 15° F for more than two to four weeks show signs of loss of quality.** Fruit will keep its quality somewhat longer at that temperature. The 1 or 2 cubic feet of space are satisfactory for keeping a small amount of frozen food on hand, such as two or three weeks' supplies of assorted products. This is also adequate space for one or two weeks' supply brought home from the locker plant.

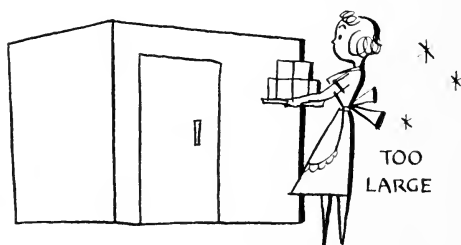
Some refrigerators now have a freezing storage compartment that maintains a temperature of 0° F. These units have separate doors to the freezing compartment which acts as a regular small freezer where food can be stored for longer than is possible in the units described above.

*what size home freezing unit  
should I buy?* \*

If you have decided that, of the three methods of home freezing available, the individual freezing unit will best serve you, the next thing to consider is the size. While cost may determine the size, it is well to know the amount of storage space your family considers essential. Too large a box is an extravagance; too small a box is an annoyance. Five cubic feet for each person in the family has been suggested. However, this may prove to be larger than necessary in many counties of California where there is a year-round supply of fresh vegetables and seasonal fruits.



TOO SMALL



TOO  
LARGE

✓ **Check the following pointers when deciding on the minimum size for your family:**

1. Estimate the total amount of fruit, vegetables, meat, and other products your family will need for one year. How much of this will be used fresh? (See page 5 for suggestions.)

2. Find out which foods your family prefers frozen rather than preserved by other methods, such as canning.

3. Determine how much of the food must be in the locker at any one time. Most fruits are frozen in the summer. Only vegetables that cannot be grown the year round should be frozen, and only enough to carry from one growing season to the next.

4. Estimate how much meat must go in at one time—for example, if a whole baby beef is slaughtered for storage in the home locker, it will require 10 to 12 cubic feet. Will the meat be home-grown, or bought wholesale, to be cut and wrapped at the local plant? If the latter, it is probably more convenient and less expensive to rent a box at a locker plant, all or part of the year, and have a smaller storage box at home. Even when meat is home-grown, it may be advisable to have large animals, such as beef, slaughtered, cut, and wrapped at a local plant.

5. Will the family increase or decrease in the next five or ten years?

✓ **Check the following figures for the approximate space necessary for different items in the freezing unit:**

**One cubic foot of space holds:**

about 40 pounds fruit and sirup, *or*  
about 25 to 30 pounds vegetables, *or*  
about 35 to 40 pounds meat

More space per pound is required for bulky items, such as whole poultry.

**One cubic foot of space also holds:**

about 40 pint cartons (standard size)

Each pint carton holds:

3 to 4 small servings, *or*  
1 pound frozen fruit and sirup, *or*  
10 to 12 ounces vegetables

Two servings daily of fruit would require a total of 800 pounds, as purchased, for a family of four for one year. Two or three servings daily of vegetables require about 730 pounds of potatoes and 1,160 pounds, as purchased, of other vegetables.

Many fruits and vegetables, such as oranges, broccoli, and carrots, are available fresh in California almost the year around, and need not be frozen.

Some fruits and vegetables, such as tomatoes, pears, and potatoes, do not give frozen products of the quality that justifies freezing. Raw salad vegetables do not freeze satisfactorily.

Check the list of fruits and vegetables in the charts at the center of the book, to see which ones you wish to freeze and to decide how much of each.

MEAT				
(Estimating 2 pounds daily for a family of 4 totals 730 pounds of meat a year)				
Meat	Weight of Animal	Dressed weight lbs.	Locker space necessary to store entire amount cubic feet	Family needs
Beef	800 pounds Baby beef	400	10-12	
Pork	200 lb. hog	110	3	
Lamb	80-100 lb. lamb	40	1	
Veal	180 lb. calf	100	2½	
Rabbit	10 rabbits 3 to 4 lbs. dressed	30-40	1	
Poultry	10 chickens 3 to 4 lbs. dressed	30-40	1	



# ***BEFORE YOU BEGIN . . .***

**In the following sections, you will find instructions for the freezing, storing, thawing, and cooking of various kinds of foods. The following pointers apply to any kind of food that you prepare for freezing storage:**

- 1. Use only good quality foods.**
- 2. Handle them promptly.**
- 3. Prepare them properly.**
- 4. Use correct packaging.**
- 5. Seal completely.**
- 6. Freeze foods promptly.**
- 7. Have proper storage conditions (0°F).**
- 8. Plan the use of the stored supply.**

## **PACKAGING MATERIALS . . .**

Changes in flavor, texture, and nutritive value occur during storage when frozen foods are loosely wrapped or not properly sealed, or when the wrapping materials are not moisture-vapor-resistant.

The material and containers listed below are all moisture-vapor-resistant enough to be satisfactory for the usual storage periods:

**Moisture-vapor-resistant cellophane or pliofilm.**

**Laminated aluminum foil, cellophane, or glassine.**

**Forty-pound locker paper** with a heavy wax coating on one side. The waxed side should be placed against the food. Use two sheets of this paper for wrapping.

**Leak-proof containers** made of the above materials.

**Tin cans** with tight fitting lids. Use enameled or lacquered cans for red or dark-colored fruits. Leave an empty space at the top for liquid expansion—usually about 10 per cent.

**Glass jars** made for freezing storage. Other straight-side glass jars may break during freezing or thawing. Leave ample

head space. Glass jars cost less than other containers because they can be reused, but round containers require more locker space than do rectangular ones.

**Cardboard containers** heavily waxed on the inside, which can be heat-sealed, or which have a cellophane wrap that can be heat-sealed, or which have tight covers.

The packaging material should also be odorless and should remain sealed and unbroken at freezing storage temperatures. It should be impervious to fruit or vegetable juices.

Moisture-vapor-resistant cellophane, in rolls, is at present less expensive than some of the newer wrapping materials. It is more moisture-vapor-resistant than the waxed locker paper.

## **FREEZING AND STORING . . .**

Keep a notebook record of all foods frozen. Include date, method of preparation for freezing, and any special information. Indicate also the date when the product should be removed from storage. This record will help you decide when and how to use the food.

### **To Freeze at the Locker Plant:**

Take packages to the plant as soon as they are prepared. Quick-freeze and store at 0° F or lower.

### **To Freeze in a Home Unit:**

Place packages in freezing compartment of the unit. Leave until solid, then place in storage compartment at 0° F or lower.

If the home unit is for storage only, freeze only a few packages at one time—not more than 5 per cent of the total capacity of the box. Place them against the

sides or coils, and leave space between them while they freeze.

Quick-freeze large quantities of food at a locker plant.

### **Storage Period:**

Long storage impairs quality. Use first the food which has been stored longest. The following storage times are a guide for foods stored at 0° F:

Ground meat: 1 to 3 months.

Pork, fish, and lamb: 3 to 6 months.

Beef, veal, and poultry: 9 to 12 months.

Fruits and vegetables: 12 months.

# PREPARATION OF FOOD . . .

## To Prepare Fruit:

These instructions are general, and apply to any fruits to be prepared for freezing. In the center of the book, you will find charts with specific instructions and recommendations for individual fruits.

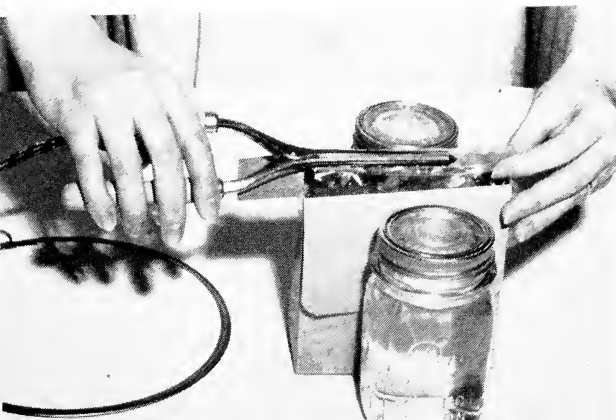


Above: Fill inner bag.

Below: Fold ends.



Heat seal.



All fruits and berries, except rhubarb and strawberries, require special treatment before freezing. This is necessary to hold the color, flavor, and nutritive value during storage. Most fruits are best if covered with a sugar sirup. Strawberries, and fruit for pies and cobblers, are better if packed in dry sugar.

1. Select fruits that are fully mature, firm-textured, highly colored, and of distinct flavor. If you wish to freeze some fruits or varieties not given in the chart (center of book), it would be best to freeze one or two packages as a test, before storing a large amount. Not all fruits and varieties freeze well.

2. Wash fruit in cold water.

3. Decide what kind of sweetening is to be used, and the strength of the sirup. The tartness of the fruit, and the family's taste will influence your choice, as will the amount of fruit to sirup.

**Cane or beet sugar sirup.** (See recommendations in chart.) More than 3 cups sugar to 1 quart water makes most fruit too sweet. Less than 1 cup sugar to 1 quart water is seldom satisfactory.

**Corn sirups.** Regular blends of corn sirup may be used in place of half the necessary sugar. This mixed sirup will be less sweet than the all-sugar sirup. Sweeter, specially developed corn sirups may be used, in proportions of 1 cup corn sirup to 1 or more cups water, or in the same proportions as the regular corn sirups. The flavor of this sirup is noticeably different from that of cane or beet sugar.

4. Add sugar or corn sirup to cold water to make the sirup. Stir carefully until sugar is dissolved. (It is not usually necessary to add ascorbic acid to prevent



darkening of fruits if they have been carefully handled. If darkening is a problem, however, 1 teaspoon ascorbic acid may be added to 3 quarts of sirup. This is equivalent to about 1 gram of granular ascorbic acid to 1 quart of cold sirup.)

**For a dry sugar pack,** use 2 cups sugar to 4 to 6 pounds fruit. Mix fruit and sugar together before packaging.

**5.** Prepare the fruit as it will be served. Remove any inedible parts, such as skins, pits, or cores. Cut large fruits into smaller pieces. (Cut fruits that discolor directly into cold sirup, either in the carton, or in a bowl.)

**6.** Package in a suitable container. Leave head space (empty space) at top of carton— $\frac{1}{2}$  inch for a 5-inch carton. Be sure sirup covers the fruit.

**7.** Seal container. Use a hot iron for heat-sealable containers. Use tight fitting lids for all others.

**8.** Date and label all cartons.

**9.** Freeze. Put packaged fruits in the refrigerator if they must stand a short time before freezing.

**10.** Store at  $0^{\circ}$  F or below.



### To Prepare Fruit Purée:

Fruit purées may be used in frozen desserts, as sauce for ice cream, in cake fillings, and for making jam or jelly.

**1.** Use whole, mature fruit, or sound parts of slightly damaged fruit.

**2.** Wash, peel if necessary, and crush. Simply mash the fruit, or use a well-tinned meat chopper or a food mill.

**3.** Add dry sugar to taste—as little as 1 cup to 6 to 8 cups of purée.

**4.** Package in a suitable container, leaving head space. Seal.

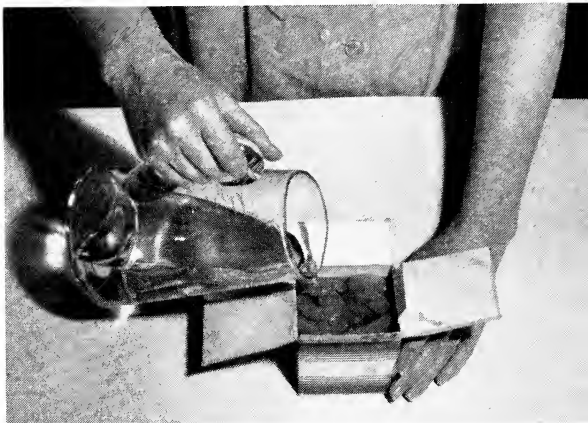
**5.** Label. Give amount of sugar used. (You will need to know this when you come to use the purée.)

**6.** Freeze.

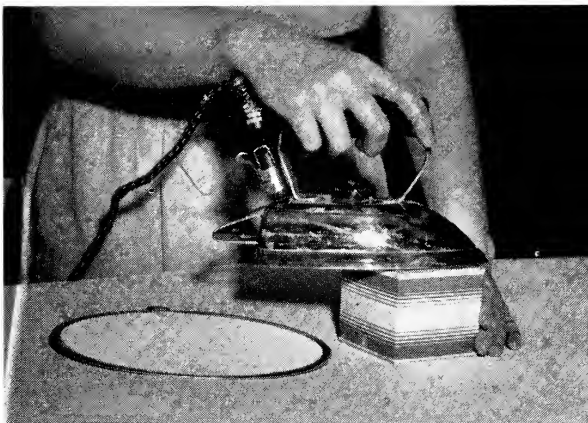


**Above: Cut fruit directly into sirup.**

**Below: Cover, leaving head space.**



**Seal carton.**



**Use dry pack for berries.**



### **To Prepare Fruit Juices:**

Fruit juices should be heated before being frozen, otherwise they develop a jelly-like pectin clot during storage. This is unattractive, and limits use of the juices. Heating prevents such clotting.

1. Heat apricots, berries, red cherries, red grapes, and plums to 165°–170° F, in a small amount of water, before extracting juice.

Extract juice from apples, white cherries, white grapes, and citrus fruits, then heat it in a double boiler, to 165° F.

2. Add some sugar to all juices except citrus. Use as little as 1 cup sugar to 6 to 8 cups juice.

3. Chill the juice. Pour into suitable containers. Leave head space— $\frac{1}{2}$  inch for a 5-inch carton. Seal.

4. Label. Give amount of sugar used.

5. Freeze.

### **To Prepare Vegetables:**

All vegetables (except pimientos and peppers) should be blanched or cooked before freezing. This prevents loss of color, flavor, and nutritive value during storage.

**These instructions are general, and apply to any vegetables to be prepared for freezing. Following this section you will find charts with specific instructions and recommendations for individual vegetables.**

1. Use young, barely mature vegetables. Older ones do not freeze well.

2. Harvest vegetables early in the morning. Prepare them as you would for the table; freeze as soon as possible.

3. Wash in cold water. Cut, and sort according to size.

4. Blanch in boiling water:

Use enough water to cover the vegetables completely.

For nonleafy vegetables, use about 2 quarts of water per pound.

For leafy vegetables, use about 3 quarts of water per pound.

Do not blanch more than 2 pounds of vegetables at one time. Put them into a wire basket, colander, cheesecloth bag, or any other container that allows free movement of the vegetables, and immerse them in briskly boiling water.

Start counting blanching time when the water comes to a boil again, after vegetables are immersed (see chart). If the water takes more than a minute or two to return to the boil, blanch a smaller quantity of vegetables at one time. The water may be used several times, for blanching the same kind of vegetables.

5. Chill. Do not pack vegetables while they are hot. Lift them from the boiling water and put at once into a pan containing ice and water. Use only a small amount of water—just enough to cover the vegetables. Add ice as needed. Do not chill vegetables in running water.

Test for proper chilling of vegetables such as peas or asparagus by breaking or cutting. The vegetable should be chilled to the center.

6. Remove from water, drain, and package.

7. Heat-seal packages, or use tight fitting lids.

8. Freeze at once.

### **To Prepare Vegetable Purée:**

1. Blanch vegetables as directed.

2. Cool, and put through a puréeur or food chopper. (Heat tomatoes to 165° F either before or after puréeing.)

3. Chill quickly.

4. Package.

5. Freeze at once.

**Blanch vegetables in  
boiling water.**

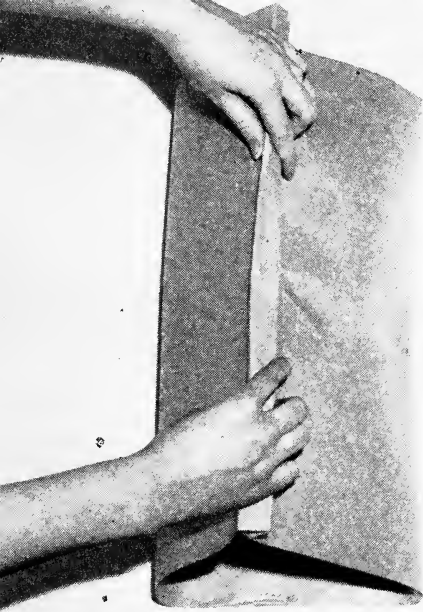


**Chill quickly.**



**Package promptly.**





**Wrap meat tightly.  
Seal, label, and date.**



### **To Prepare Meat:**

**1.** Select healthy, well-conditioned, young animals.

**2.** Kill and prepare carcass as for fresh meat.

**3.** Chill meat rapidly. If it is held in the chill room longer than the time recommended, it will not keep so well in storage.

**4.** Chill and age meat at temperatures from 32° to 34° F. Lamb, pork, and veal need not be aged, but should be chilled 1 to 2 days. Beef will chill and age enough in 5 to 7 days.

**5.** When carcass has been properly chilled and aged, cut into pieces of desired size.

**6.** Wrap. If waxed locker paper is used, place the waxed side against the meat, and use two sheets. In stacking steaks or

chops, put a piece of locker paper between each one. Place the meat in the center of the paper. Use enough paper so that you can fold the edges down at least three times. If cellophane or pliofilm is used for the first wrap, an outer wrap of heavier paper or stockinet must also be used.

**7.** Bring two edges of the paper together above the meat, and fold down in 1/2- to 1-inch folds until the paper is tight against the meat. Fold ends in the same way. Press paper firmly against meat.

**8.** Fasten securely with twine or odorless tape.

**9.** Label. Give weight, date, type of meat, number of servings.

**10.** Freeze and store.

## DIRECTIONS FOR FREEZING VEGETABLES

**VARIETIES:** Unless specific varieties are recommended, any variety of the vegetables in the list is suitable for freezing.

**BLANCHING:** Blanch all vegetables unless other preparation is indicated. Use boiling water. Start counting blanching time when water resumes boiling after vegetables are immersed.

**CHILLING:** Chill all blanched vegetables (except mushrooms and olives) in ice water before packaging.

**PACKAGING:** Drain vegetables after blanching. Pack in suitable containers. Seal. Quick-freeze promptly.

**STORING:** Store at 0° F or below.

Vegetable	Preparation	Blanching Time
Artichokes	Pull off outer bracts. Cut off top of bud. Trim stem. Wash.	8 to 10 minutes. Or 8 to 10 minutes in boiling citric acid solution (3 teaspoons citric acid crystals to 2 quarts water).
Asparagus	Wash. Cut. Freeze promptly for best results.	2 minutes
Beans: lima, Henderson bush, Fordhook	Remove pods. Wash. Sort for size.	2 to 3 minutes
Beans, snap: Green bush or pole types	Use tender, stringless beans. Wash. Cut into 1-inch pieces, or French cut.	1½ minutes
Beets	Mature beets: cook, then peel, slice or dice, before freezing. Small, tender beets: wash, peel, dice, or leave whole.	Small, whole: 5 minutes Uncooked, diced: 3 minutes
Broccoli	Wash. Cut to serving size. Split large stalks.	3 to 4 minutes
Brussels sprouts	Trim off outer leaves. Wash.	4 to 5 minutes
Cabbage	Remove outer leaves. Quarter and core. Cut into 1-inch wedges.	1 minute
Carrots	Cut into ½-inch pieces, or dice.	2½ minutes
Cauliflower	Wash. Break to serving size pieces.	3 minutes
Corn on cob: Yellow var.	Use slightly immature corn with fully developed kernels. Husk, de-silk.	8 to 10 minutes, depending on size
Corn, cut: Yellow var.	Same as for corn on cob. Cut kernels from cob after blanching and chilling.	1½ minutes, on cob
Greens	Use young, tender leaves. Wash.	1½ minutes
Mushrooms Caution: Use only edible var.	Use small, fresh ones with tight, white caps. Cut off base of stems. Slice or leave whole. May be fried in butter or margarine before freezing, instead of blanching.	2 to 4 minutes. NOTE: Chill in iced citric acid solution (3 teaspoons citric acid crystals in 2 quarts water).
Olives: Mission var.	Prepare according to 1-lye or 3-lye process. (See Univ. of Calif. leaflet, 1945, "Home Pickling of Olives.")	Boil 10-15 minutes in brine containing 6½ tablespoons salt per gallon of water. Drain off brine, and chill before freezing.
Peas	Remove pods. Wash. Sort for size.	1 minute
Pimientos and Peppers	Wash. Remove stem and seeds. Cut in halves, slice, or dice.	Do not blanch.
Squash: Italian, Summer, Crookneck, Zucchini	Use young squash. Wash and cut into ½-inch slices.	3 minutes
Squash, winter	Use well-ripened, fully mature squash. Peel and cut into 1-inch cubes. Cook until soft. Purée. Add salt and spice to taste, for pie.	No blanching required.
Mixed Vegetables	Use any combination desired. Prepare each vegetable separately according to directions above. Mix after blanching.	See blanching time for each vegetable.



## DIRECTIONS FOR FREEZING FRUITS

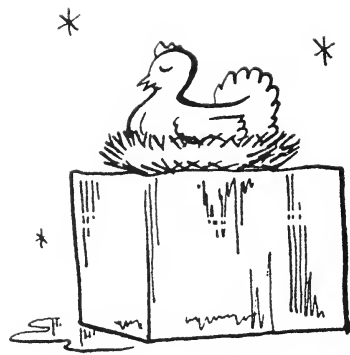
**VARIETIES:** Not all varieties of the different fruits are satisfactory for freezing. The ones recommended in the list have been found to give best results. Where no specific one is recommended, any may be used.

**PACKAGING:** Pack fruit into suitable containers. If sirup is used, leave head space.

**Seal. Freeze.**

**STORING:** Store at 0° F or below.

Fruit	Preparation	Sugar
Apples	Peel, core, and slice. Make into apple-sauce, or sirup scald for 2 minutes.	Sirup scald: 1 cup sugar to 1 quart water. Bring to a boil.
Apricots: Blenheim (Royal), Moorpark, Tilton	Peel, cut into quarters or slice into cold sirup.	Cold sirup: 3 cups sugar to 1 quart water.
Avocados	Peel and stone fruit. Purée. Add lemon or sugar to taste. (May be used in ice creams, sandwiches, salads, etc.)	If you add sugar: 5 parts by weight of pulp to 1 part by weight of sugar.
Berries (except strawberries)	Wash if necessary. Pick over.	Cold sirup: 2 cups sugar to 1 quart water. Dry sugar as desired, or freeze without sugar.
Cantaloupe	Use firm, ripe, highly flavored melons. Cut in half; remove seeds. Cut balls or cubes into cold sirup. (Best when used with mixed fruits.)	Cold sirup: 2 cups sugar to 1 quart water.
Cherries (sour)	Wash. Pit if desired.	Dry sugar: 1 pound sugar to 5 pounds cherries.
Cherries (sweet): Bing, Lambert, Royal Ann	Wash. Pit if desired.	Cold sirup: 2 to 3 cups sugar to 1 quart water.
Coconut (fresh)	Shred. Add coconut milk. (To use, pour off milk and add sugar as desired.)	No sugar when packed.
Figs: Calimyrna, Kadota, Mission	Wash. Peel if desired. Cut Calimyrnas and discard if sour.	Cold sirup: 1 to 2 cups sugar to 1 quart water.
Grapefruit	Peel, cutting deep enough to remove white membrane under skin. Section, using stainless steel knife and removing membranes between sections.	Freeze with or without sugar. For sugar: 1 pound sugar to 5 pounds fruit. Dissolve sugar in juice from fruit without heating. Pour sirup over fruit. Add water if necessary.
Grapes: Muscat, Thompson seedless	Pick over. Remove stems. Wash. (Best when used with mixed fruits.)	Cold sirup: 2 cups sugar to 1 quart water.
Nectarines	Peel. Cut into quarters, halves, or slices, directly into sirup.	Cold sirup: 2 to 3 cups sugar to 1 quart water.
Oranges: Any except navels	Same as for grapefruit.	Same as for grapefruit.
Peaches: Elberta, J. H. Hale, Rio Oso Gem	Peel. Cut into quarters, halves, or slices, directly into sirup.	Cold sirup: 2 to 3 cups sugar to 1 quart water.
Persimmons: Fuyu, Hachiya	Peel. Remove any seeds. Purée.	1 pound sugar to 6 pounds purée.
Plums: Beauty, Gaviota, Santa Rosa	Cut into halves, or purée.	Cold sirup: 3 cups sugar to 1 quart water. Dry sugar: 1 pound sugar to 3 pounds plums.
Rhubarb	Wash and cut into desired lengths.	Dry sugar as desired, or freeze without sugar.
Strawberries: Banner (Marshall), Klondike, Driscoll A-1	Wash if necessary. Pick over. Remove hulls. Crush with sugar, or slice. Place a few whole berries in carton for garnish.	Dry sugar: 1 pound sugar to 4 to 6 pounds berries.
Mixed Fruits	Use any combination desired. Prepare each fruit separately according to directions above. Mix.	Cold sirup: 2 to 3 cups sugar to 1 quart water.





## To Prepare Poultry:

1. Select plump birds with well-fleshed breasts and legs. If older, or less well-developed birds are used, restrict their range for about two weeks before they are killed, and supply them with ample growing mash, skim milk or buttermilk, and grain.

2. Hang the bird by the legs for one minute, immediately after killing, to allow complete bleeding.

3. Semiscald by immersing at once in water 125° to 135° F until the feathers loosen. Agitate vigorously. The bird must be scalded at once after killing if it is to pick easily when semiscalded. A heavy scald—175° to 185° F—may be used, but it results in poor appearance and increases the tendency toward freezer-burn.

4. Hang bird by the feet and remove feathers and pinfeathers. A strawberry huller and No. 8 crochet hook are helpful in removing pinfeathers.

5. Singe to remove hairs. Wash in cool water, using soap or soda. Rinse.

6. Chill completely by placing in the refrigerator not longer than 24 hours, or place in ice water for 2 or 3 hours.

7. Prepare for wrapping. First, cut out the oil sac from above the tail. Remove head and feet. Leave a roaster whole, but remove entrails. Disjoint and cut fryer or bird for fricassee, drawing before or while cutting. Split broiler along back-bone after removing head and feet, remove entrails, cut bird in two along the

side of the breast bone. Separate heart, liver, and gizzard from entrails. Remove contents of gizzard; remove gall bladder from liver. Wrap giblets separately. Omit livers, or freeze them separately and use within three months.

8. Wrap or pack each bird tightly in moisture-vapor-resistant paper or containers. This helps prevent freezer-burn, or drying out.

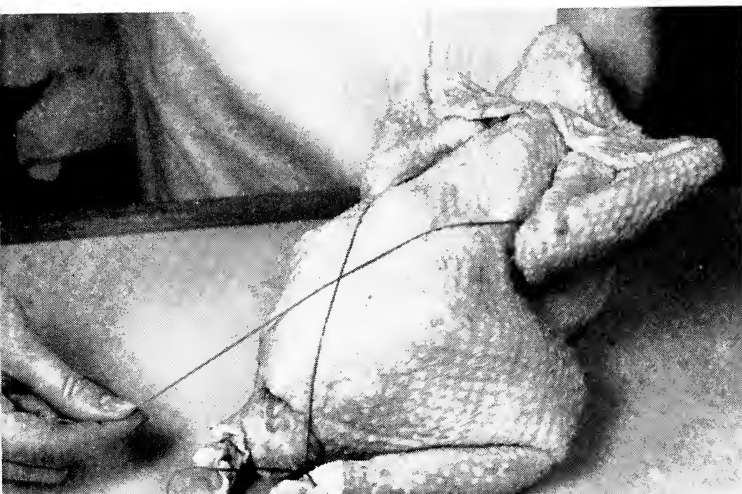
9. Label, giving weight, date, and type of bird.

10. Freeze and store.

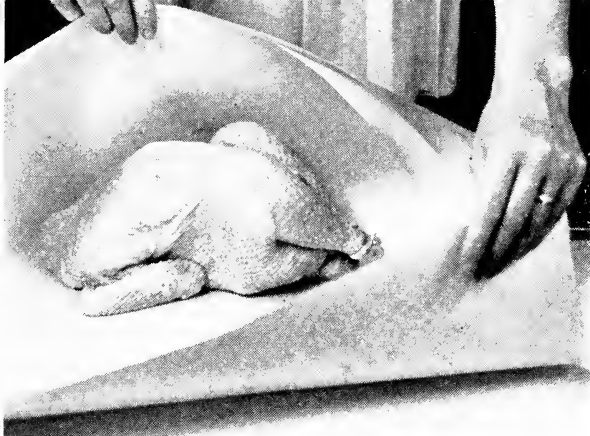
**Roasters.** Place wrapped giblets in body cavity. For tying, use about 1 yard of heavy twine. Tie the legs together, flatten them against the body, and secure by looping the twine over the tail. Holding the twine taut, bring it diagonally across the back and under and around the wing. Fold wing tip against the back. Draw string over to second wing, catch neck skin under string. Loop string over, then under the second wing. Bring it back to the first leg and tie the ends firmly.

**Broilers.** Place a piece of cellophane or double-folded locker paper between the halves. Include wrapped giblets in the package. Wrap as directed for roasters.

**NOTE: Frozen poultry develops slight changes in texture and flavor after about 6 months' storage at 0° F. These changes usually become noticeable after 9 to 12 months. Do not plan to hold over 12 months.**



**Tie roaster securely.**



To wrap, place tied bird in center of a square of suitable locker paper.



Bring edges of paper together and fold down in  $\frac{1}{2}$ - to 1-inch folds until paper is tight against the bird. Fold ends in the same way.



Fasten securely with twine or odorless tape. Label, and date.

Below: If cellophane or pliofilm is used for wrapping, an outer wrap of heavier paper or stockinet must also be used.



**For fryers or fricassee birds, pack large meat pieces into the cavity of the back sections. (If desired, bony pieces may be omitted.)**



**Put wrapped giblets with other pieces, and place small ends of the legs toward the center of the pack. Wrap as directed for roasters, making as nearly square-sided a package as possible.**



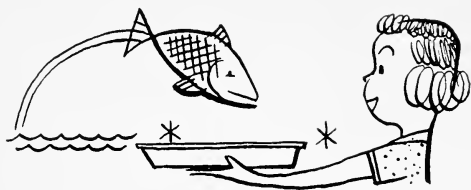
**Or pack pieces into a waxed carton or cellophane bag.**



**Seal the package, or cover with cellophane and seal.**



### To Prepare Fish:



1. Use only fresh fish. Clean, scale, dress, and wash.

2. Seal in airtight package. This is necessary, to prevent fish odor from getting into other foods.

3. Date, label, and freeze quickly.

Fish may also be glazed before wrapping. To do this, freeze fish, dip quickly into cold water, and refreeze. Wrap glazed fish tightly, as for meat.

### To Prepare Shellfish:

**Oysters.** Wash in fresh water for 5 to 10 minutes. Do not cook. Pack in suitable liquid-tight containers. Seal and quick-freeze.

**Clams and Scallops.** Wash in salt solution, 1 tablespoon salt in each quart of water. Do not cook. Pack in liquid-tight containers. Seal and quick-freeze.

**Crabs and Lobsters.** Steam or boil for 15 to 20 minutes. Cool. Remove the meat from the shells. Pack in liquid-tight containers. Seal and quick-freeze.

**Shrimp.** Remove and discard the heads. Package and freeze the meat in the shells, without cooking.

**NOTE:** Do not store shellfish longer than a month or two as the meat of most shellfish tends to toughen on longer storage.



### To Prepare Eggs:

**Whole eggs:** Break eggs, mix yolks and whites together. (This mixture remains rather thick when thawed. Thickening may be prevented by adding 2 teaspoons of salt or 2 tablespoons of sugar to each cup of mixture, but this limits the use of the eggs.)

**Egg yolks:** Separate from whites. Mix 2 teaspoons salt or 2 tablespoons sugar into each cup of yolks.

**Egg whites:** Separate from yolks.

1. Package, leaving head space, and seal.

2. Label (give number of eggs in each carton), freeze, and store.

## PRECOOKED FROZEN FOODS . . .

Most cooked foods may be frozen, but some are not sufficiently satisfactory to justify the preparation necessary. To develop a list of frozen precooked foods which are satisfactory for your use, freeze two packages of your favorite recipes. Use one at the end of one month, the other, three months later. Keep a list of those which you find satisfactory.

Frozen foods serve you best when they require a minimum of time and effort to prepare them for the table. Some take

longer to prepare, thaw, and cook, than to make them of fresh ingredients—for example, baking powder biscuits.



**Precooking food for freezing is worth trying for the following:**

Seasonal foods.

Foods that require a long time to prepare.

Foods that take only a little more work to prepare in quantity than to prepare for a single meal.

Foods that require little attention between freezer and table.

Do not precook foods too long if they are to be heated before serving. They should be chilled rapidly and completely before packaging, and packaged in moisture-resistant material to prevent drying out.

**NOTE: Freezing does not sterilize foods, and those cooked before freezing are often more subject to spoilage when thawed than are fresh foods.**



The storage life of most precooked foods is much shorter than that of uncooked foods. Too long storage results in a change in flavor and texture. Suggested storage periods are:

Pies	2 to 4 months
Baked breads and cakes	4 to 6 months
Meats, stews, etc.	3 to 6 months
Batters and doughs	1 to 3 months
Cooky doughs	6 to 8 months

**1.** Frozen white sauces tend to curdle during thawing. They will generally become smooth again when heated and



stirred. Sauces made from concentrated meat and chicken stock tend to separate less than do those from diluted stock.

**2.** Do not freeze potatoes in any precooked dishes, such as stews, as they become mushy when frozen.

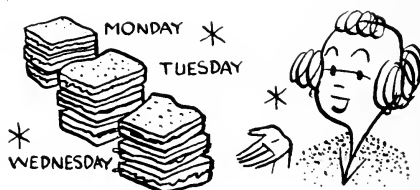
**3.** Omit hard-cooked eggs from precooked dishes. They become rubbery.

**4.** Most sandwiches, except those containing eggs, freeze satisfactorily when properly packaged. Do not include mayonnaise or lettuce.

**5.** Baked rolls, bread, and cake keep successfully in freezing storage. Refrigerator or rock cookies are almost equally successful frozen cooked or as dough. Batters and doughs may be frozen, but the baked product is easier to handle and use.

**6.** In general, pies that have been frozen unbaked have a flakier, more tender crust than do pies that are baked before freezing. Custard pie does not freeze well.

**7.** Freeze cooked meats in a surrounding sauce or gravy. This helps retain flavor and texture longer.



## THAWING AND COOKING FROZEN FOODS . . .

Frozen foods, when thawed and cooked, should have the bright color, firm texture, appetizing odor, full flavor, and high nutritive value of the best quality fresh food. To insure this high quality, store frozen food only for the period recommended, and use proper thawing and cooking methods.

When you remove foods from freezing storage, place them in the freezing com-

partment of your refrigerator immediately. They may be kept there safely for at least 2 weeks.

Keep food frozen until ready to use. In an emergency, however, frozen food placed in a refrigerator at 38° to 40° F may be held for 2 to 3 days, but it must be watched for signs of spoilage.

Throw away any thawed food that looks off-color, has a peculiar odor, or is slimy. **Do not taste it.**

### Vegetables

Vegetables lose quality if allowed to thaw before cooking. Start cooking them while they are still frozen. (Exception: corn on the cob. Thaw before cooking. Its flavor will be better if cooked by steam.) There is no point in using a pressure cooker for frozen vegetables—no time is saved, and there is danger of overcooking.

Cook vegetables in briskly boiling, salted water— $\frac{1}{4}$  to  $\frac{1}{3}$  cup for a 12-ounce package. More may be added, if necessary, as the vegetables cook. (Even strong-flavored vegetables, such as broccoli and Brussels sprouts, need only this small amount of water.)

Add vegetables to the boiling water. Cover until the water returns to boiling.

Uncover to finish cooking. Most of the water should be evaporated by the time the vegetables are done.

Cooking time varies with the maturity and variety of vegetable. **Do not overcook.** The blanching of vegetables before freezing, and the change in their texture during freezing make them especially subject to undesirable changes in color, flavor, and texture if they are overcooked.

Here are suggested cooking times:

After the water boils,

**5 minutes for:** asparagus, broccoli, Brussels sprouts, cauliflower, cut corn, peas, spinach.

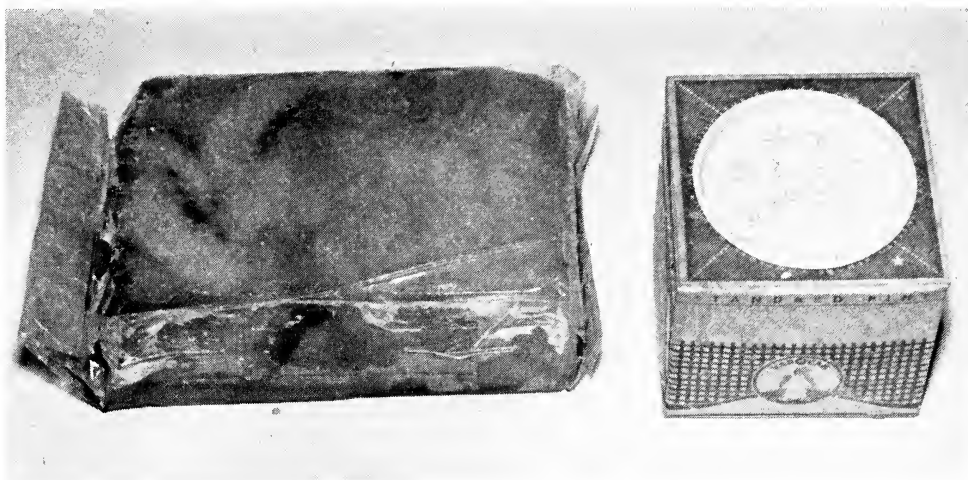
**5 to 10 minutes for:** snap beans, lima beans.

**Cook vegetables, while still frozen, in small amount of boiling water for a short period of time.**





## Fruits



**Thaw fruit in unopened container, in refrigerator or at room temperature.**

Most fruits have the best flavor and color if served just before they are completely defrosted.

Thaw fruit in the **sealed** container. This helps prevent change of color.

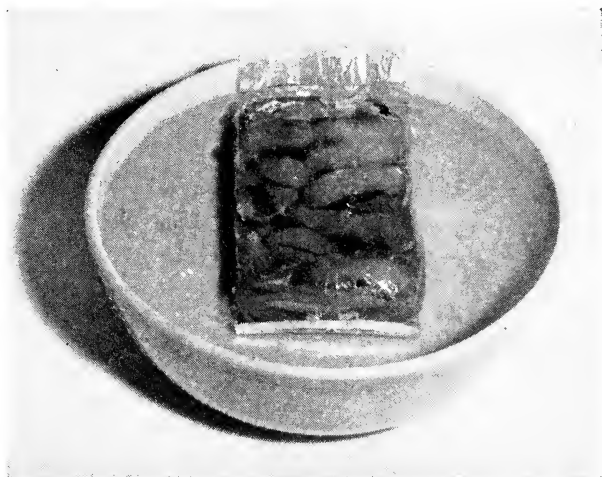
To thaw a 1-pound package:

1. Place in a pan of cold water for  $\frac{1}{2}$  to 1 hour, **or**
2. Leave in the refrigerator for 6 to 8 hours, **or**
3. Leave at room temperature for 2 to 3 hours.

Do not thaw more than you plan to use at one time. Most thawed fruits darken and lose flavor if left standing. If you have to hold fruit after thawing, simmer it for a few minutes, and chill before storing. This helps preserve the fresh color and flavor.

Frozen fruits to be cooked should be thawed and used in the same way as fresh fruit. If they are used for pies, thaw them only enough so that they may be separated and spread apart.

**Fruit may also be thawed  
in cold water.**



## Meat

There is no consistent difference, in losses of flavor or juiciness, between meat thawed before cooking and meat cooked while still frozen.

Use the method of preparation most suitable for the particular cut and kind of meat. Under usual conditions, freezing does not tenderize meat.

If the meat is to be thawed, leave it in the unopened container, or in one that will collect the drippings. To thaw: Leave at room temperature for 2 to 2½ hours. An electric fan may be used to speed up thawing. Or leave in the refrigerator, allowing about 5 hours per pound of meat. Thawing time will vary with weight and shape of the meat, thickness of wrapping, and room temperature. Do not thaw unwrapped meat in cold water.

**Steaks and Chops.** Thaw and cook according to directions for fresh meat, or cook without thawing. If you do not thaw the meat, allow it to cook slightly longer than you would fresh meat—about 8 minutes longer for 1-inch-thick pieces; 14 minutes longer for 1½-inch pieces.

**Oven Roasts.** Thaw and cook according to directions for fresh meat, or cook without thawing, or when partially thawed. If you do not thaw the meat, place it in the oven, which has been set for 275° to 300° F, with a meat thermometer. Insert the thermometer through a hole in the meat muscle so that the bulb is in the center of the roast but not against a bone. If the meat is frozen too hard to get the thermometer in, start the cooking and insert it after the roast thaws. Cook partially frozen meat about 10 minutes longer per pound than you would fresh meat. Cook completely frozen meat 20 to 25 minutes longer per pound.

**Less Tender Cuts.** Cook by moist heat, according to the usual directions. Allow a slightly longer time for large pieces of unthawed meat.

Remove birds from storage. Thaw fryers, broilers, or roasters in the refrigerator or at room temperature. Fricassee birds need not be thawed. Place them directly into the liquid in which they are to be cooked.

Cook all poultry according to directions for fresh birds.

According to the California Fish and Game Commission, located in the Ferry Building, San Francisco, the State law specifies that deer may be held 15 days after the close of the season, without any permit.

To obtain a permit to keep deer out of season, you must have the hunting license and the deer tag number. The fee is \$1.00 per carcass, and the permit can be obtained at the locker plant or from the Fish and Game Commission. After obtaining a permit, you may keep venison indefinitely.

There is no season in which antelope may be killed in California. If it is brought in from another state, you must fill out a declaration of entry which you can get from the California Fish and Game Commission.

Duck cannot be held longer than 90 days after the end of the season. This is a Federal as well as State regulation. There is no provision for longer storage.

Pheasants must be taken to the California Fish and Game Commission during the season to be tagged. They can then be held indefinitely.

Fish may be held for 10 days after the close of the season. There is no regulation for longer storage.



## WHERE TO FIND IT . . .



	PAGE
Will it pay to store frozen food? . . . . .	3
What methods of freezing storage are available? . . . . .	3
What size home freezing unit should I buy? . . . . .	4
Before you begin . . . . .	6
Packaging materials . . . . .	7
Freezing and storing . . . . .	7
Preparation of food . . . . .	8
To prepare fruit . . . . .	8
To prepare fruit purée . . . . .	9
To prepare fruit juices . . . . .	10
To prepare vegetables . . . . .	10
To prepare vegetable purée . . . . .	10
To prepare meat . . . . .	12
To prepare poultry . . . . .	13
To prepare fish . . . . .	16
To prepare shellfish . . . . .	16
To prepare eggs . . . . .	16
Precooked frozen foods . . . . .	16
Thawing and cooking frozen foods . . . . .	18
Vegetables . . . . .	18
Fruits . . . . .	19
Meat . . . . .	20





# TIME WELL SPENT.....

a visit with . . . the home demonstration agent. A trained home economist willing and able to assist rural homemakers in . . . meal planning . . . food buying . . . clothing the family . . . planning the home for convenience and comfort . . . and other homemaking problems . . . time well spent when you consult this free service.



## You will find a Home Demonstration Agent in:

Alameda County:  
Post Office Bldg., Hayward

Butte County:  
Federal Bldg., Oroville

Colusa County:  
Federal Bldg., Colusa

Contra Costa County:  
Cowell

El Dorado County:  
Post Office Building, Placerville

Fresno County:  
Room 20 Federal Bldg.,  
Fresno 1

Humboldt County:  
Post Office Bldg., Eureka

Imperial County:  
Court House, El Centro

Kern County:  
2610 M St., Bakersfield

Kings County:  
131 E. 8th St., Hanford

Lake County:  
Kelseyville

Lassen County:  
Memorial Bldg., Susanville

Los Angeles County:  
511 E. Aliso St.,  
Los Angeles 12

Madera County:  
Post Office Bldg., Madera

Marin County:  
Post Office Bldg., San Rafael

Mendocino County:  
362 N. State St., Ukiah

Merced County:  
County Adobe Bldg.,  
Court House Square, Merced

Modoc County:  
1621 Main St., Alturas

Monterey County:  
Court House, Salinas

Napa County:  
Post Office Bldg., Napa

Nevada County:  
Memorial Bldg., Grass Valley

Orange County:  
1104 W. 8th St., Santa Ana

Placer County:  
1389 Lincoln Way, Auburn

Plumas County:  
Court House, Quincy

Riverside County:  
Post Office Bldg., Riverside

Sacramento County:  
315 Federal Bldg.,  
Sacramento 2

San Benito County:  
Court House, Hollister

San Bernardino County:  
Federal Bldg., San Bernardino

San Diego County:  
404 U. S. Customs Bldg.,  
San Diego 1

San Joaquin County:  
145 S. American St.,  
Stockton 7

San Luis Obispo County:  
997 Monterey St.,  
San Luis Obispo

San Mateo County:  
Half Moon Bay

Santa Barbara County:  
Federal Bldg., Santa Barbara

Santa Clara County:  
201 Post Office Bldg.,  
San Jose 18

Santa Cruz County:  
Court House Annex,  
Santa Cruz

Shasta County:  
County Office Bldg., Redding

Siskiyou County:  
Court House, Yreka

Solano County:  
County Library Bldg.,  
Fairfield

Sonoma County:  
Court House, Santa Rosa

Stanislaus County:  
Federal Bldg., Modesto

Sutter County:  
Post Office Bldg., Yuba City

Tehama County:  
Federal Bldg., Red Bluff

Tulare County:  
Post Office Bldg., Visalia

Tuolumne County:  
815 Washington St., Sonora

Ventura County:  
52 N. California St., Ventura

Yolo County:  
Court House, Woodland

Yuba County:  
Federal Bldg., Marysville

**CALIFORNIA AGRICULTURAL EXTENSION SERVICE  
UNIVERSITY OF CALIFORNIA • BERKELEY**